NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122
Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Undesignated Formation Penn County Lea

Initial X Annual ____ Special ____ Date of Test May 26, 1965

Company Shell Oil Company Lease "BK" Federal Well No. 4-1

Unit F Sec. 4 Twp. 22-S Rge. 34-E Purchaser None

Casing 7 5/8" Wt. 33.7# I.D. 6.765 Set at 11,880 Perf. 11,838 to 14,199' To 12,873' 13,098'
Liner 5 1/2" 20.0# 4.778

Tubing 2 1/2" Wt. 6.5# I.D. 2.441 Set at 12,737' Perf. ____ To ____

Gas Pay: From 12,873' To 13,098' L 12,737' xG Mix .619 -GL 7884 Bar.Press. 13.2

Producing Thru: Casing ____ Tubing X Type Well Single
Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: June 1, 1965 Packer 12,737 Reservoir Temp. ____

OBSERVED DATA

Tested Through ~~(Prover)(Choke)~~ (Meter) Type Taps Flge

No.	Flow Data: ~~Prover~~ (Line) Size	~~Choke~~ (Orifice) Size	Press. psig	Diff. h_w	Temp. °F.	Tubing Data: Press. psig	Tubing Data: Temp. °F.	Casing Data: Press. psig	Casing Data: Temp. °F.	Duration of Flow Hr.
SI						5807	63	Packer		44
1.	4	1.250	760	22.0	104	5517	75			3
2.	4	1.250	775	38.0	95	5319	77			2
3.	4	1.250	775	58.0	93	5045	80			3
4.	4	1.250	775	78.0	85	4724	81			3
5.										

FLOW CALCULATIONS

No.	Coefficient (24-Hour)	$\sqrt{h_w p_f}$	Pressure psia	Flow Temp. Factor F_t	Gravity Factor F_g	Compress. Factor F_{pv}	Rate of Flow Q-MCFPD @ 15.025 psia
1.	9.643	130.4	773.2	.9602	1.0041	1.046	1,268
2.	9.643	173.0	788.2	.9680	1.0041	1.048	1,700
3.	9.643	213.8	788.2	.9697	1.0041	1.051	2,109
4.	9.643	247.9	788.2	.9768	1.0041	1.053	2,487
5.							

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 122,840 cf/bbl.
Gravity of Liquid Hydrocarbons 47 deg. API deg.
F_c 5.866 $(1-e^{-s})$ .419

Specific Gravity Separator Gas .595
Specific Gravity Flowing Fluid .7927
Pf ~~Pt~~ 7464.2 ~~Pt~~ P_f^2 55,714

BHP measured with BHP bomb

No.	~~Pw~~ Ps ~~Pt~~ (psia)	P_t^2	F_cQ	$(F_cQ)^2$	$\frac{(F_cQ)^2}{(1-e^{-s})}$	~~Pc~~ P_c^2 P_s^2	~~Pc~~ P_c^2 $P_f^2-P_w^2$	Cal. P_w	$\frac{P_w}{P_c}$
1.	7025.2					49,353	6,361		
2.	6812.2					46,406	9,308		
3.	6534.2					42,670	13,044		
4.	6185.2					38,257	17,457		
5.									

Absolute Potential: 4,900 MCFPD; n .595

COMPANY Shell Oil Company
ADDRESS P. O. Box 1858, Roswell, New Mexico
AGENT and TITLE A. L. Allard - Gas Tester
WITNESSED ____
COMPANY ____

REMARKS

INSTRUCTIONS

This form is to be used for reporting multi-point back pressure tests on gas wells in the State, except those on which special orders are applicable. Three copies of this form and the back pressure curve shall be filed with the Commission at Box 871, Santa Fe.

The log log paper used for plotting the back pressure curve shall be of at least three inch cycles.

NOMENCLATURE

Q = Actual rate of flow at end of flow period at W. H. working pressure (P_w). MCF/da. @ 15.025 psia and 60° F.

P_c = 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater. psia

P_w = Static wellhead working pressure as determined at the end of flow period. (Casing if flowing thru tubing, tubing if flowing thru casing.) psia

P_t = Flowing wellhead pressure (tubing if flowing through tubing, casing if flowing through casing.) psia

P_f = Meter pressure, psia.

h_w = Differential meter pressure, inches water.

F_g = Gravity correction factor.

F_t = Flowing temperature correction factor.

F_{pv} = Supercompressability factor.

n = Slope of back pressure curve.

Note: If P_w cannot be taken because of manner of completion or condition of well, then P_w must be calculated by adding the pressure drop due to friction within the flow string to P_t.